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**Lestodiplosis satiata** new species.

This species is an extreme form, placed here, though the prolongation of several dorsal loops of the circumfili suggest a relationship to *Aphidoletes*. The male was collected August 28, 1917, by Mr. Howard Notman at Keene Valley, N. Y. It falls in the key near *L. triangularis* Felt and *L. asclepiæ* Felt, from both of which it is readily distinguished by characters given below.

Male.—Length 1 mm. Antennæ more than twice the length of the body, thickly haired, mostly pale yellowish, the two basal antennal segments and most of the basal enlargements of the others somewhat fuscous; 14 segments, the fifth having stems each with a length  $2\frac{1}{2}$  times its diameter; one or more dorsal loops of the circumfili greatly produced and with a length fully twice that of the normal loops; terminal segments produced, the basal portion of the stem with a length about six times its diameter, the distal enlargement sub-cylindrical, somewhat expanded distally and apically forming an obtuse cone. Palpi: first segment irregular, the second about twice the length of the first, the third a little longer than the second, more slender, the fourth a little longer than the third. Mesonotum dark brown. Scutellum and postscutellum yellowish brown. Abdomen mostly dark brown. Wings rather indistinctly spotted with fuscous, iridescent spots. Halteres whitish transparent. Coxæ and legs mostly dark brown, the distal portion of femora, the distal and basal thirds of tibiæ, the distal half of the second tarsal segment and the third, fourth, and fifth tarsal segments mostly yellowish. Claws rather long, slender, slightly curved, the pulvilli nearly as long as the claws. Genitalia: basal lobe of the somewhat slender basal clasp segment unusually small, dorsal plate short, deeply and narrowly emarginate, the lobes broad, irregularly rounded and setose; dorsal plate moderately long, broad, broadly rounded and thickly setose apically. Type Cecid. 1775.

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## NOTES AND NEW SPECIES OF BEMBIDIUM.

BY HOWARD NOTMAN.

BROOKLYN, N. Y.

In a paper on some coleoptera collected at Cochrane, Ontario (JOUR. N. Y. ENT. Soc., Vol. XXVII, p. 92), the writer described a species of *Bembidium* to which he gave the name *B. lengi*. A further study of the descriptions of related species and the collection of more material indicate some points of interest worthy of mention.

In the Fauna Boreali Americana (Vol. IV, p. 57) Kirby described a *Bembidium* (*Notaphus*) *nigripes*. This species seems satisfactorily identified as a small black-legged form allied to *B. patruale* and *B. posticum*. A large series was collected at Cochrane where it is abundant. Mannerheim later described a different species, taking it for Kirby's (Bull. Mosc., No. 2, 1852, p. 300). Leconte discovered this error and named the species described by Mannerheim, *B. incrematum* (Proc. Acad. Nat. Sci. Phila., 1860, p. 316). He says: "The Russian American (species) described as *B. nigripes* (Kirby) by Mannerheim, is totally different, being much larger, with the pale bands of the elytra very badly defined and the epipleuræ pale, resembling (in) these characters *B. indistinctum* Dej. from California; it differs, however, from that species by the thorax being more strongly margined, with the posterior angles more rectangular and prominent, and the basal carinæ very distinct; the dorsal line and impressions are likewise deeper. In all these respects it agrees with *B. approximatum* Lec., but differs by the punctures of the elytral striæ being larger and less closely placed. The femora are dark: in *B. approximatum* the legs are usually pale, though sometimes dark, in *B. indistinctum* they are always pale. The species will hereafter be known as *B. incrematum*; it differs from all the allied species by the seventh elytral stria being obliterated and represented only by punctures."

In the Coleoptera of Michigan (Proc. Amer. Phil. Soc., XVII, p. 594) Leconte described *B. arcuatum*. He says: "Prothorax wider than long, rounded on the sides, strongly sinuate behind, base as wide as the apex; hind angles rectangular, carinate; basal impressions deep, dorsal line well-impressed, transverse impressions feeble. Elytra elongate-oval." Then following the description: "Marquette, Lake Superior. This species resembles *B. flammulatum* (*dentellum*) of Europe, but is wider and less convex. It also greatly resembles *B. incrematum* Lec. from Cal., Oregon and Alaska, but the latter has the elytral markings undefined, and the striæ finer and less strongly punctured."

Hayward in his paper on the genus (Trans. Am. Ent. Soc., IX, p. 97) gives descriptions of two species: *B. graciliforme*, described as new, and *B. dentellum* Thunb. The latter he states to be identical with *incrematum* Lec. and *arcuatum* Lec. Hayward's two species are easily recognized in a series of 79 specimens collected by the writer

at various localities in New York State. *Dentellum* is distinguished by its broader, more parallel form, rufous legs—femora frequently piceous medially—and thorax with sides less strongly curved and base as wide as or slightly wider than the apex; *graciliforme* by its elongate-oval form, testaceous legs, thorax broader and larger, with sides more strongly curved and margins wider, base slightly narrower than the apex.

A study of Leconte's descriptions and the two European specimens of *dentellum* now at hand makes it seem probable that Hayward was wrong in the naming of both of these species. The thorax in the European specimens is broader and flatter with the sides more strongly rounded; they seem very distinct. Also Leconte's description of *arcuatum* agrees better with the species described by Hayward as *graciliforme*, than it does with the *dentellum* of the latter author, for he says, "thorax strongly sinuate behind" and the elytra "elongate-oval"; neither of these phrases could be used so fittingly for the specimens at hand believed to be *dentellum* (Hayw.), in which the sides of the thorax are feebly sinuate and the elytra rather broad and oblong. It seems that Hayward may have been influenced by the above quoted description of Leconte's which is probably misprinted. As it stands it reads, "This species' (*arcuatum*) resembles *B. flammulatum* (*dentellum*) of Europe, but is wider and less convex." This sentence is unintelligible taken in connection with the specimens. If, however, the last clause be changed to read, "but (the latter—namely, *dentellum*) is wider and less convex," the description agrees with the specimens and with Hayward's description of *graciliforme*. The species, therefore, which Hayward calls *dentellum* is probably neither that species nor *arcuatum*. It might be *incrematum*; nothing in the original description of the latter conflicts, but in the portion of the description of *arcuatum* quoted, Leconte states that the striæ are finer and less strongly punctured in *incrematum*. Hayward makes no distinction in this respect between the two species he describes, nor is any such difference to be found in the specimens at hand. It seems probable that *incrematum* is allied to *approximatum* and *indistinctum* in which the striation is distinctly finer.

Colonel Casey, in his recent work on this genus (Mem. Col., VIII, 1918, p. 117), does not apparently recognize Hayward's species. He

describes a species which he calls *arcuatum* Lec. and makes *graciliforme* a variety of it. In view of the author's well-known inclinations it is probable that specimens of Hayward's *dentellum* were not included in his material, especially since he makes no mention of the difference in the color of the legs, a difference which holds true throughout the series of 79 specimens collected by the writer in many localities in New York state during two seasons.

It seems, therefore, that Hayward has described a new species under the impression that he was describing *dentellum*, Thunb. repeating Mannerheim's error noted above, that the writer has re-described this species as *B. lengi* in the paper referred to and that the species may be properly called by the latter name until further evidence is produced.

That *arcuatum* (*graciliforme* Hayw.) and *lengi* (*dentellum* Hayw.) are distinct species is supported by differences in habitat. The specimens of *lengi* taken in the Adirondacks Mountains were obtained by pouring water over leaves and drift among alders on a river sand bar: the specimens collected at Waterville, N. Y., were found along the upper edge of a sloping river sand bank, close to the grass, into which they run unless approached with great caution. *Arcuatum* is found most abundantly often in company with *B. assimile* in low, moist woods in leaves on ground recently under water and not yet dry. *Lengi* shows a decided preference for higher altitudes; the elevation at Waterville is 1,200 feet and at the locality in the Adirondack Mountains nearly 2,000 feet.

The following three species collected in the Adirondack Mts., N. Y., are believed to be new:

***Bembidium occultator* new species.**

Form moderately convex, oblong, sub-parallel, somewhat elongate; color black throughout with faint greenish bronze lustre, stronger on the head and thorax. Head finely but distinctly alutaceous; thorax similar but with the disk obsoletely alutaceous and strongly shining; elytra strongly shining. Head as broad as long, three fourths the width of the thorax and slightly wider than the thorax at apex; eyes strongly convex prominent; frontal grooves single, parallel, arcuate, rather broad and indefinite, not continuous with the clypeal grooves which are narrow, deep, arcuate and terminate in front in foveæ distant from the anterior margin; antennæ about one half the total length of the body, joints more than twice as long as wide; mentum tooth distinct, rounded at tip. Thorax less than one third wider than long, as wide at base

as at apex, slightly more than two thirds the width of the elytra; slightly emarginate at apex, the sides moderately arcuate in front, oblique and just perceptibly sinuate behind; posterior angles obtuse; transverse impressions strong, indistinctly rugose; median line strong, distinctly impressed, abbreviated at either end, basal foveæ large, bistriate; posterior angles strongly carinate; side margins rather broad with reflexed edges. Elytra one half longer than wide, humeri indistinctly angulate, sides sub-parallel to the middle thence broadly and evenly arcuate to the apex; striæ fine, entire, impunctate, the fifth strongly at apex, the sixth and seventh obsolescent, the eighth not distinct from the margin, intervals slightly convex basally on the disk; the third stria with the first dorsal puncture slightly more than one third from the base, the second slightly less than one third from the apex. Length 4 mm., width 1.25 mm. 1 ♂.

Meadow Pond, Mt. Redfield, Essex Co., N. Y., 19 July, 1919, 3000 ft. elev.

This species resembles *B. grapei* somewhat in form. The elytral striation is that of *B. planiusculum* and *B. simplex*. In Hayward's synopsis it would be placed in the group *planatum* and would be distinguished from *quadrifoveolatum* Mann. and *mæklini* Lec. by its narrower thorax. In Col Casey's revision it should probably be placed next *viator* (Mem. Col. VIII, p. 31) from which species it would differ by its narrower and differently shaped thorax and entirely impunctate elytral striæ.

The specimen was collected among sparse grass on a muddy sand bar.

The relationship of the following two species are shown in synoptic form:

A. Legs pale; size very small.

B. Head alutaceous; elytra uniform in color.....**musicola** Hayw.

BB. Head not alutaceous; elytra with basal and basal half of side margins  
rufo-testaceous .....**semicinctum** Ntm.

(Bull. Bkln. Ent. Soc. XIV p. 129)

AA. Legs dark; size moderately small.

B. Form broad; thorax  $\frac{1}{3}$  wider than long; elytra piceous.

**quadratum** n. sp.

BB. Form elongate; thorax  $\frac{1}{4}$  wider than long; elytra black.

**proximum** n. sp.

**Bembidium quadratum** new species.

Form short, sub-parallel, strongly convex; color black slightly æneous, strongly shining; basal joint of the antennæ, the legs and elytra dark piceous;

head and thorax not alutaceous. Head as broad as long, three fourths the width of the thorax, slightly wider than the thorax at apex; eyes strongly convex prominent; frontal grooves single, parallel, rather strongly marked, extending to the clypeal suture; clypeus with a large fovea either side, indistinctly connected with the frontal grooves; antennæ short, not quite as long as the head and thorax, joints less than twice as long as wide; mentum tooth acute. Thorax one third wider than long, not narrower at base than apex, two thirds the width of the elytra, scarcely emarginate at apex, sides strongly rounded anteriorly, oblique and slightly sinuate posteriorly, becoming parallel for a short distance in front of the posterior angles which are sharply rectangular; transverse impressions very indistinct; median line rather fine, feebly impressed, abbreviated at either end; basal foveæ, large, deep, bistriate, nearly smooth; posterior angles strongly carinate; margin narrow, finely reflexed. Elytra one third longer than wide, humeri rounded, sides parallel and feebly arcuate to the apical third, thence obtusely rounded to the apex; striæ obsolete with the exception of the sutural which becomes deep on the apical third and is continued around the apex joining the eighth which becomes confluent with the margin at basal fourth. The position of the striæ is occupied by rows of coarse, closely placed punctures all of which become obsolete on apical third; the second almost reaches the apex. The punctures of the first two rows are smaller and more closely placed; the seventh row ends at the middle. The third interval with two dorsal punctures near the third stria; the first at basal third, the second at apical third. Length 3.75 mm., width 1.5 mm. 1 ♀.

Moss Pond, Mt. Redfield, Essex Co., N. Y. 17 July, 1919. 4300 ft. elev.

***Bembidium proximum*** new species.

This species greatly resembles the foregoing. It is more slender in form. The elytra are black. The antennæ are very slightly more slender. The thorax is one fourth wider than long; the base is slightly narrower than the apex and the sides more strongly rounded in front. The elytra are one half longer than wide, elongate-oval with the sides evenly arcuate from the base to the apex. Length 3.75 mm., width 1.3 mm. 1 ♂.

Moss Pond, Mt. Redfield, Essex Co., N. Y. 17 July, 1919.

These two specimens were collected on a flat partially moss-covered ledge of rock in the beaver meadow in which the above pond is located.